



Procedure: C-A-EMP-580-BMS
Revision: 04
Revision Date: 03/03/04

COLLIDER-ACCELERATOR DEPARTMENT

Title: Environmental Management Program For Beam Stops & Collimators

Prepared by: R. Karol

Group: ESH&Q

Approvals

Signature on File Date: _____

ESH&Q Division Head

Signature on File Date: _____

Collider-Accelerator Department Chairman

(Indicate additional signatures)

Y N

☐ x FS Representative: _____ Date: _____

☐ x Radiological Control Coordinator: _____ Date: _____

☐ x Chief ME: _____ Date: _____

☐ x Chief EE: _____ Date: _____

x ☐ Environmental/P2 Coordinator: *Signature on File* Date: _____

☐ x QA Manager: _____ Date: _____

☐ x Other: _____ Date: _____

ENVIRONMENTAL MANAGEMENT PROGRAM <u>C-A Beam Stops/Collimators</u>	Completed by: <u>R. Karol</u> Date: <u>March 3, 2004</u>
1. Significant Aspects: (see "Criteria for Significant Aspects" for description of letter designation) <ul style="list-style-type: none"> • Soil Activation (a) • Atmospheric Discharges (c) 	
2. Department-wide Objective(s): <ul style="list-style-type: none"> A. COMPLIANCE – (d) Meet Federal and State Air Program Requirements including reducing the use of (and eventual phase out of) Ozone Depleting Substances (ODS) (EWMSD Environmental Objectives & Targets FY2004, Sect. 2[d]) B. COMPLIANCE, NESHAPS – Comply with the Radioactive Emissions subject area (EWMSD Environmental Objectives & Targets FY2004, Sect. 2[d]) C. POLLUTION PREVENTION – (b) Integrate pollution prevention (P2) to evaluate and implement pollution prevention opportunities. Expand awareness and involvement in the BNL P2 Program (FY04 Critical Outcome, Appendix B, 3.4.3, Pollution Prevention; EWMSD Environmental Objectives & Targets FY2004, Sect. 3[b]) D. POLLUTION PREVENTION – (c) Reduce or prevent generation of non-routine waste, including spills (FY04 Critical Outcome, Appendix B, 3.4.3, Pollution Prevention; EWMSD Environmental Objectives & Targets FY2004, Sect. 3[c]) E. GROUNDWATER PROTECTION - Fully implement groundwater protection program. Protect groundwater quality from further chemical and radiological releases, and remediate existing contaminated groundwater in a cost-effective and practical manner (EWMSD Environmental Objectives & Targets FY2004, Sect. 5) 	
3. Department-wide Target(s): <ul style="list-style-type: none"> A. By March 31, 2004, involve Environmental Compliance Representatives (ECRs) in review of applicable Clean Air Act regulatory requirements for those emission units, processes, and emission sources covered by BNL's Title V permit to ensure that compliance assurance documentation is consistent with recommendations offered in the Facility Use Agreement environmental database on the web at http://intranet.bnl.gov/esh/esd/FUA_Data.htm B. Baseline and periodically measure all radonuclides that could contribute at least 10% of the potential effective dose equivalent for the effluent source C. Submit a minimum of two pollution prevention project proposals by December 15, 2003, or two success stories, or two lessons learned to the P2 Program Manager by September 15, 2004 D. (1) Reduce spill response costs by ~\$30,000 through education on proper remediation of Subject Area allowed spill clean-up. This would represent ~ 50% reduction in costs associated with the reporting of minor spills. Reduce the average release volume of reportable spills by 10% through improved operator "tools" & response. (2) Develop a plan for the reduction of PCB carrying devices by 12/15/04. (3) Monitor waste generation rates for non-routine waste streams and report to line management on a quarterly basis E. Zero impact on groundwater quality from current operations, this will be measured by the number of confirmed impacts to groundwater quality resulting from current operations 	

4. Department-wide Environmental Performance Indicator(s):

- P2 projects, success stories, and lessons learned that are submitted to BNL P2 Council.
- Radiological contaminants detected in down gradient groundwater monitoring wells.
- Title V Permit documentation is correct and FUA database is up to date.
- Number of NESHAPs Subpart H violations (as determined by internal C-AD ESHQ audits).
- Trends on radioactivity from groundwater sampling points.
- Completion of tasks listed in Section 10.

5. Department-wide Program Description:

To limit the potential impact that C-A facilities may have on groundwater quality, landfill-style caps of various materials have been installed over areas where soil activation is known or suspected to occur. The design goal for these caps is to prevent the infiltration of precipitation through activated soils surrounding the tunnel, and thereby prevent the leaching of radionuclides to groundwater. Groundwater wells have been installed to monitor the effectiveness of the caps. The EWMSD groundwater-monitoring program provides for sampling and analysis of water from these wells.

Since C-A facilities may release radionuclides into the atmosphere, which could cause public doses of < 0.1 mrem/yr, periodic confirmatory air monitoring is required. A formal program for conducting this sampling on an annual basis is given in [C-A OPM 9.5.12](#).

Departmental self-assessment program, Tier I inspections, and annual compliance reviews by the C-A ESHQ Division ECR shall meet EWMSD Environmental Objectives & Targets FY2004. Tracking and trending waste generation and waste recycling as well as on time regulatory reporting shall contribute towards achieving EWMSD Environmental Objectives & Targets FY2004. Submitting pollution prevention projects, success stories or lessons learned shall contribute towards achieving FY04 Critical Outcome/Objective 3.4.3 Pollution Prevention. The minimization of wastes, prevention of spills and meeting SPDES permit limits shall also help satisfy the overall contract Objective 3.4, Improved ESH&Q.

A list of "Unfunded Environmental Liabilities" was drafted by Laboratory staff and reviewed with the DOE. The Department shall help further identify legacy issues in a comprehensive manner. Many of the issues identified in the draft list pose regulatory (e.g., storage of wastes for periods >1 year), environmental (e.g., contaminated media), and social risks to BNL. The C-A Department shall actively find a path forward to better define the scope and priority of the issues and seek/identify funding resources to implement cleanup. This effort shall contribute towards achieving FY04 Critical Outcome/Objective 3.4.1 Legacy Risk Management.

6. Potential Environmental Impact(s):

- Direct activation of soil could lead to groundwater contamination.
- Unmonitored radioactive discharges to the atmosphere could violate NYSDEC or EPA air emission regulations (Clean Air Act, NESHAPs, Subpart H).

7. Legal and Other Requirements:

The following BNL SBMS subject areas apply:

- [Design Loss for Known Beam Loss Locations](#)
- Radioactive Airborne Emissions
- Environmental Monitoring
- Pollution Prevention

8. Operational Controls: See [Operational Controls Form](#)**9. Budget:**

- Operating Budget

10. Structure, Authorities, Responsibilities

Tasks	Person Responsible	Completion Dates
A. The C-A ECR shall review all emission points for compliance, documentation, and forward any updates to the EWMSD Subject Matter Expert.	C-A ECR	03/04
Collection and analysis of tunnel air samples	C-A RCD Facility Representative/ECR	Annually
Annual reporting of air sampling results to EPA Region II	EWMSD Radiological Subject Matter Expert	Annually
B. Periodically measure all radionuclides that could contribute at least 10% of the potential effective dose equivalent for the effluent source.	C-A Radiation Control	A/R

C. The C-A ECR shall facilitate the submission of a P2 proposal for the NSRL digital camera, and success stories for: (1) The reduction of 2 MW power by tuning of the RHIC refrigeration system (save \$2400/day or 48 MW-hr/day) (2) The reduction of 2 MW power in ATR while RHIC is on store (assume off for 2/3/ of a day saves \$1600/day or 32 MW-hr/day)	(1) C-A ECR	12/03
	(2) C-A ECR	9/04
D. (1) Semi-annually distribute information on spill kits/materials and subject area requirements on spill clean-up and reportability. Track and report on C-A Spill costs (2) Submit ADS funding request for PCB's and track request. through to the final disposition (3) The C-A Environmental Coordinator shall prepare and submit quarterly reports that track non-routine waste amounts and costs for disposal	(1) ECR (2) ESHQ Division Head (3) Environmental Coordinator	Semi-annually 06/04 Quarterly
E. Track the number of unusual or off normal events associated with groundwater impacts in current operations	C-A ESHQ Division Head	Semi-annually
Collection and analysis of groundwater samples, timely reporting of results back to C-A	EWMSD	Two to four times per year, depending on Environmental Monitoring Plan
Maintenance of soil caps	C-A / Plant Engineering	As needed
Work with ERD to review and determine best method to deal with g-2 tritiated plume (EE/CA)	Environmental Management Division, Environmental & Waste Management Services Division and C-A ESHQ Division	6/04
Document and verify groundwater results to assure that they meet expected trends	C-A ESHQ Head	Quarterly